Faculty Profile

Name	: Dr. Sonia Goel
Designation	: Assistant Professor
Qualifications	: B.E. (EE), M.E (I&C), Ph.D
Phone	: +91-9540040549
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Area of Interest/Specialization: **Control Systems, Fuzzy Clustering Technique**

Experience	: 20+ years

Dr. Sonia Goel has been a regular faculty member in the Department of Electrical Engineering at Maharaja Surajmal Institute of Technology (MSIT), New Delhi, India, since January 2008. She is a life member of the International Association of Engineers (IAENG) and has contributed several research papers to ESCI/SCI-indexed journals and reputed international conferences. Her research interests lie in the areas of fuzzy logic, system modeling, identification, and control of nonlinear systems.

Key Publications

Journal Publications

1. Goel, Sonia, et al. "An Enhanced Integrated Method for Healthcare Data Classification with Incompleteness." Computers, Materials & Continua, 81.2, 3125-3145, 2024. (SCIE indexed) https://doi.org/10.32604/cmc.2024.054476

2. Goel, Sonia & Tushir, Meena, "A conditionally positive definite kernel function for clustering of incomplete data", Journal of Information and Optimization Sciences, 45:2, 403–412, 2024, (ESCI indexed) DOI: 10.47974/JIOS-1557

3. Goel, S., & Tushir, M., "Different Approaches for Missing Data Handling in Fuzzy Clustering: A Review", *Recent Advances in Electrical & Electronic Engineering,* 13(6), 833-846, 2020. (ESCI indexed) https://doi.org/10.2174/2352096512666191127121710

4. Goel, S., & Tushir, M., "A new iterative fuzzy clustering approach for incomplete data", *Journal of Statistics and Management Systems*, 23(1), 91-102, 2020.(ESCI indexed) https://doi.org/10.1080/09720510.2020.1714150

5. Goel, Sonia and Tushir, Meena. "A New Semi-supervised Clustering for Incomplete Data", *Journal of Intelligent & Fuzzy Systems,* vol. Pre-press, no. Pre-press, pp. 1-13, 2021.(SCIE indexed, Impact factor 1.637) DOI: 10.3233/JIFS-189744

6. Goel, S. and Tushir, M., "A new imputation-based incomplete data-driven fuzzy modeling

for accuracy improvement in ubiquitous computing applications", International Journal of Pervasive Computing and Communications, Vol. 17 No. 4, pp. 426-442, 2021 https://doi.org/10.1108/IJPCC-03-2021-0069

Conference Publications

1. Goel, S., & Tushir, M., "Linear Interpolation-Based Fuzzy Clustering Approach for Missing Data Handling." *In Advances in Communication and Computational Technology*, pp. 597-604, Springer, Singapore, 2020. https://doi.org/10.1007/978-981-15-5341-7_45

2. Goel, S., & Tushir, M., "A Semi-supervised Clustering for Incomplete Data". *In Applications of Artificial Intelligence Techniques in Engineering*, pp. 323-331, Springer, Singapore, 2019. https://doi.org/10.1007/978-981-13-1819-1_31

3. Sonia Goel and Meena Tushir, "Kernel Functions for Clustering of Incomplete Data: A Comparative Study", In Advances in Data Computing, Communication and Security, pp.63-75. Springer, Singapore, 2022. https://doi.org/10.1007/978-981-16-8403-6_6

4. S. Goel and M. Tushir, "A Comparative study of different approaches for clustering of incomplete medical data," *2023 13th International Conference on Cloud Computing, Data Science & Engineering (Confluence)*, Noida, India, 2023, pp. 112-117, doi: 10.1109/Confluence56041.2023.10048818.

Awards and Certificates

1. Dr Sonia Goel has completed the NPTEL-AICTE Faculty Development Programme on "Data Mining" with Elite certification conducted by IIT Kharagpur and funded by the MoE, Government of India, during January-March 2025.

2. Dr. Sonia Goel of MSIT has been awarded the "Best Paper Award" for the paper titled, "Linear Interpolation-Based Kernel Fuzzy C-Means Clustering for Incomplete Medical Data" in the "3rd International Conference on Artificial Intelligence and Applications" held on 26th–27th March, 2025 at Maharaja Surajmal Institute of Technology, Delhi.

3. Dr Sonia Goel has completed the NPTEL-AICTE Faculty Development Programme on "Deep Learning" with Elite Silver award conducted by IIT Madras and funded by the MoE, Government of India during Jul-Oct 2024.

4. Dr Sonia Goel has been declared topper with Elite Silver award and positioned among the top 2% of the candidates who appeared for the course "Phyton for Data Sciences" conducted by IIT Madras and funded by the MoE, Government of India during Jan 2024-Feb 2024.

5. Dr Sonia Goel has completed the NPTEL-AICTE Faculty Development Programme on "Data Analytics with Python" conducted by IIT Madras and funded by the MoE, Government of India, during January 2023- April 2023.

6. Dr Sonia Goel has been declared topper with Elite Silver award and positioned among the top 2% of the candidates who appeared for the course "Introduction to Machine Learning" conducted by IIT Kharagpur and funded by the MoE, Government of India during July 2022- September 2022.

7. Dr. Sonia Goel has been awarded with certificate of Research Excellence in 2022.

Patent Granted

A patent entitled, "Web application based Intelligent & Secured Image Retrieval Model"(Application No. 20211100841 & Patent No. 462240 is granted to Prof. Poonam Bansal, Ms. Shefali Dhingra, Prof. Meena Tushir, **Dr. Sonia Goe**l, Ms. Jyoti Arora, and Ms. Pooja Kherwa on 26/10/2023.